

CLAIMS

What is claimed is:

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1. Apparatus for fixation of a sensor in a bodily lumen, comprising:  
a fixation device; and  
a sensor support coupled to the fixation device.
2. The apparatus of claim 1, wherein the fixation device is a stent.
3. The apparatus of claim 2, wherein the stent having an end, and the sensor support coupled to the end of the stent.
4. The apparatus of claim 1, wherein the fixation device is an aneurismal repair device.
5. The apparatus of claim 1, wherein the fixation device is an anchoring ring.
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6. The apparatus of claim 5, wherein the anchoring ring further comprising at least one piece of material forming a parameter and arranged as at least one sinusoid positioned perpendicular to a plane formed by a cross section of the anchoring ring.
7. The apparatus of claim 6, wherein the sensor support is coupled to a peak of the sinusoid of the anchoring ring.
- Sub E3*
8. The apparatus of claim 5, wherein the anchoring ring further comprising a plurality of ellipses, each having long portions and short portions, joined one to the other at

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approximately mid-points of the long portions.

9. The apparatus of claim 8, wherein the sensor support is coupled to an ellipse of the anchoring ring at approximately a mid-point of one of the short portions.

10. The apparatus of claim 1, wherein the fixation device includes at least a first anchoring ring and a second anchoring ring, and the sensor support coupled between the first anchoring ring and the second anchoring ring.

11. The apparatus of claim 1, wherein the fixation device includes at least a first stent and a second stent, and the sensor support coupled between the first stent and the second stent.

12. The apparatus of claim 1, wherein the sensor support comprises at least a first sensor support and a second sensor support displaced apart from one another within the lumen.

13. The apparatus of claim 12, wherein the fixation device having a first end and a second end, the first sensor support coupled generally adjacent to the first end and the second sensor support coupled generally adjacent to the second end of the fixation device.

14. The apparatus of claim 1, wherein the fixation device is expandable.

15. The apparatus of claim 1, wherein the sensor has at least one notch-like depression disposed in its periphery and wherein at least one portion of the sensor support is positioned within the at least one notch-like depression.

16. The apparatus of claim 1, wherein the sensor has a groove-like depression at at least one portion of its periphery and wherein at least one portion of the sensor support is positioned within the groove-like depression.

17. The apparatus of claim 1, wherein the sensor having a lip-like extension at at least one portion of its periphery and wherein at least one portion of the lip-like extension extending beyond the inner-most portion of the sensor support.

18. The apparatus of claim 1, wherein the sensor having at least one protrusion disposed on its periphery and wherein at least one portion of the at least one protrusion extending beyond the inner-most portion of the sensor support..

19. Apparatus for fixation of a sensor in a bodily lumen, comprising:  
a fixation device forming a perimeter having a discernable width, the fixation device having a first end and a second end; and  
at least one sensor carrier coupled to the first end of the fixation device and extending generally parallel to the perimeter in a direction away from the second end,  
wherein the sensor is supported by the sensor carrier.

20. Apparatus for fixation of a sensor in a bodily lumen, comprising a sensor having at least two holes extending therethrough.

21. Apparatus for fixation of a sensor in a bodily lumen, comprising a sensor having a border, the border including at least two holes extending therethrough.

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22. The apparatus of claim 21, wherein each hole is disposed on a different side of the border.
23. The apparatus of claim 21, wherein each hole is approximately equidistant from the other.
24. A method for fixation of a sensor in a bodily lumen, comprising the steps of:  
    placing the sensor onto a sensor support coupled to a fixation device;  
    inserting the fixation device into a bodily lumen; and  
    securing the fixation device within the bodily lumen.
25. A method for fixation of a sensor in a bodily lumen, comprising the steps of:  
    placing the sensor into a sensor support coupled to a fixation device;  
    inserting the fixation device into a bodily lumen; and  
    securing the fixation device within the bodily lumen.
26. The method according to claim 24, wherein the fixation device is a stent.
27. The method according to claim 24, wherein the fixation device is an aneurismal repair device.
28. The method according to claim 24, wherein the fixation device is an anchoring ring.
29. The method according to claim 24, further comprising the step of coupling the sensor

to the sensor support.

30. The method according to claim 29, wherein the coupling includes gluing the sensor to the sensor support.

31. The method according to claim 29, wherein the coupling includes welding the sensor to the sensor support.

32. The method according to claim 25, further comprising the step of coupling the sensor to the sensor support.

33. The method according to claim 32, wherein the coupling includes positioning at least one portion of the sensor support in at least one groove-like depression in the sensor.

34. The method according to claim 32, wherein the coupling includes positioning at least one portion of the sensor support in at least one notch-like depression in the sensor.

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35. The method according to claim 24, wherein the inserting is accomplished during an intervention procedure.

36. The method according to claim 24, wherein the securing is accomplished by expanding the fixation device.

37. The method according to claim 36, wherein the expanding is accomplished by balloon

catheterization.

38. A method for fixation of a sensor in a bodily lumen, comprising the steps of:  
inserting the sensor into a bodily lumen; and  
coupling the sensor to a section of the bodily lumen.
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39. The method of claim 38, wherein the sensor is coupled to the section of the bodily lumen using sutures.
40. The method of claim 38, wherein the sensor is coupled to the section of the bodily lumen using adhesive.
41. A method for constructing an apparatus for fixation of a sensor in a bodily lumen, comprising the steps of:  
forming a mask;  
etching a flat design of both a fixation device and a sensor support on a portion of material, the flat design of the fixation device having a first end and a second end; and  
coupling the first end and the second end of the flat design of the fixation device.
42. The method according to claim 41, wherein the fixation device is a stent.
43. The method according to claim 41, wherein the material is thin sheet-metal.
44. The method according to claim 41, wherein the material is stainless steel.

45. The method according to claim 41, wherein the material is bioabsorbable material.
46. The method according to claim 41, wherein the first end and the second end of the flat design are coupled by welding.
- ~~47.~~ A method for constructing an apparatus for fixation of a sensor in a bodily lumen, comprising the steps of:  
cutting a flat design of both a fixation device and a sensor support from a portion of material with a laser, the flat design of the fixation device having a first end and a second end; and  
coupling the first end and the second end of the flat design of the fixation device.
- ~~48.~~ A method for remotely monitoring at least one physiological parameter within a bodily lumen, comprising the steps of:  
fixing at least one remotely monitorable sensor within the bodily lumen; and  
interrogating the at least one sensor from outside the bodily lumen.
49. The method according to claim 48 wherein the at least one sensor is fixed within the bodily lumen using a fixation device having a sensor support.
50. The method according to claim 49, wherein the fixation device is a stent.
51. The method according to claim 49, wherein the fixation device is an anchoring ring.

52. The method according to claim 48, wherein the interrogating is periodic.
53. The method according to claim 48, wherein the interrogating is continuous.
54. The method according to claim 48, wherein the interrogating is done from the surface of the body.
55. A method for fixation of a sensor in a bodily lumen, comprising the steps of:  
applying a soluble protective layer to the sensor;  
placing the sensor into a sensor support coupled to a fixation device;  
inserting the fixation device into a bodily lumen; and  
securing the fixation device within the bodily lumen.
56. The method according to claim 55, wherein the protective layer is a hard coating.
57. The method according to claim 55, wherein the protective layer is comprised of glucose and sucrose.
58. The method according to claim 57, wherein the glucose and sucrose are of approximately equal proportions.
59. The method according to claim 55, wherein the protective layer is comprised of finely ground Hydroxy Propyl Methyl Cellulose, Hydroxy Propyl Cellulose and Colloidal Silicone Dioxide, and water.

60. The method according to claim 55, wherein the protective layer is soluble in an aqueous solution.
61. The method according to claim 55, wherein the protective layer dissolves rapidly after insertion.
62. The method according to claim 55, wherein the protective layer is applied by spraying the sensor.
63. The method according to claim 55, wherein the protective layer is applied by dipping the sensor.
64. The method according to claim 55, wherein the protective layer is applied by painting the sensor.
65. A protective layer for a sensor inserted within a bodily lumen comprising:  
glucose; and  
sucrose, wherein the glucose and sucrose are of approximately equal proportions.
66. A protective layer for a sensor inserted within a bodily lumen comprising:  
finely ground hydroxy propyl methyl cellulose;  
finely ground hydroxy propyl cellulose;  
finely ground colloidal silicone dioxide; and  
water.

~~67.~~ A method for protecting a remotely monitorable sensor from damage during insertion into and fixation in a bodily lumen, comprising the step of applying a soluble protective layer to the sensor, wherein the protective layer dissolves after insertion and fixation to allow proper operation of the sensor.

~~68.~~ The method according to claim 66, wherein the soluble protective layer further comprising glucose and sucrose, wherein the glucose and sucrose are of approximately equal proportions.

~~69.~~ The method according to claim 66, wherein the soluble protective layer further comprising finely ground hydroxy propyl methyl cellulose, finely ground hydroxy propyl cellulose, finely ground colloidal silicone dioxide, and water.

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